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1 [Adaptive learning networks in APL2](#)

Alexander O. Skomorokhov

 September 1993 **ACM SIGAPL APL Quote Quad , Proceedings of the international conference on APL**, Volume 24 Issue 1

 Full text available: [pdf\(865.66 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The paper considers Adaptive Learning Networks (ALN) as a tool to solve the problems of modeling, prediction, diagnostics and pattern recognition in complex systems. This method is similar to the neural network technique. The main difference is the self-organization of network structure on the basis of generation and estimation of various nodes, connections and weights. A set of functions presented in the paper shows that ALNs are easily realized in APL2. User-defined operators are used as a ver ...

2 [Supervised adaptive resonance networks](#)

R. S. Baxter

 May 1991 **Proceedings of the conference on Analysis of neural network applications**

 Full text available: [pdf\(1.44 MB\)](#) Additional Information: [full citation](#), [references](#), [index terms](#)

3 [Adaptive information retrieval: using a connectionist representation to retrieve and learn about documents](#)

R. K. Belew

 May 1989 **ACM SIGIR Forum , Proceedings of the 12th annual international ACM SIGIR conference on Research and development in information retrieval**, Volume 23 Issue 1-2

 Full text available: [pdf\(1.19 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

AIR represents a connectionist approach to the task of information retrieval. The system uses relevance feedback from its users to change its representation of authors, index terms and documents so that, over time, AIR improves at its task. The result is a representation of the consensual meaning of keywords and documents shared by some group of users. The central focus goal of this paper is to use our experience with AIR to highlight those characteristics of connectionist ...

4 [Task adaptation in stochastic language model for Chinese homophone disambiguation](#)

Yue-Shi Lee

March 2003 **ACM Transactions on Asian Language Information Processing (TALIP)**,
Volume 2 Issue 1

Full text available:  [pdf\(113.68 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The runtime application domain has a great effect on the performance of practical corpus-based applications. Previous smoothing techniques and class-based and similarity-based models could not handle the dynamic status perfectly. In this paper, an adaptive learning algorithm is proposed for task adaptation that best fits the runtime application domain in applying Chinese homophone disambiguation. The proposed algorithm is first formulated by a neural network model and then generalized to avoid t ...

Keywords: Adaptive learning, Chinese homophone disambiguation, language model, neural network, runtime application domain, task adaptation

5 Adaptive window flow control and learning algorithms for adaptive routing in data networks

Athanasios V. Vasilakos, Christos A. Moschonas, Constantinos T. Paximadis

April 1990 **ACM SIGMETRICS Performance Evaluation Review , Proceedings of the 1990 ACM SIGMETRICS conference on Measurement and modeling of computer systems**, Volume 18 Issue 1

Full text available:  [pdf\(199.20 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We present a new adaptive flow control algorithm together with learning routing algorithms. The key performance measure in both algorithms is packet delay. Window adjustment and route selection are based on delay measurements. Simulation results have shown the superiority of the new scheme over existing algorithms.

6 Student tracking and personalization: Personalization in distributed e-learning environments

Peter Dolog, Nicola Henze, Wolfgang Nejdl, Michael Sintek

May 2004 **Proceedings of the 13th international World Wide Web conference on Alternate track papers & posters**

Full text available:  [pdf\(328.49 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Personalized support for learners becomes even more important, when e-Learning takes place in open and dynamic learning and information networks. This paper shows how to realize personalized learning support in distributed learning environments based on Semantic Web technologies. Our approach fills the existing gap between current adaptive educational systems with well-established personalization functionality, and open, dynamic learning repository networks. We propose a service-based architectu ...

Keywords: P2P, adaptation, learning repositories, ontologies, personalization, standards, web services

7 Methods to speed up error back-propagation learning algorithm

Dilip Sarkar

December 1995 **ACM Computing Surveys (CSUR)**, Volume 27 Issue 4


Full text available:  [pdf\(1.86 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

Keywords: adaptive learning rate, artificial neural networks, conjugate gradient method, energy function, error back-propagation learning, feedforward networks, learning rate, momentum, oscillation of weights, training set size

8 Continuous learning: a design methodology for fault-tolerant neural networks

Vincenzo Piuri

June 1990 **Proceedings of the third international conference on Industrial and engineering applications of artificial intelligence and expert systems - Volume 2**

Full text available:  [pdf\(1.36 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Fault tolerance in artificial neural networks is an important feature, in particular when the application is critical or when maintenance is difficult. This paper presents a general design methodology for designing fault-tolerant architectures, starting from the behavioral description of the nominal network and from the nominal algorithm. The behavioral level is considered to detect errors due to hardware faults, while system survival is guaranteed by the reactivation of learning mechanisms ...

9 Call admission control in cellular networks: a reinforcement learning solution

Sidi-Mohammed Senouci, André-Luc Beylot, Guy Pujolle

March 2004 **International Journal of Network Management**, Volume 14 Issue 2

Full text available:  [pdf\(212.19 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In this paper, we address the call admission control (CAC) problem in a cellular network that handles several classes of traffic with different resource requirements. The problem is formulated as a semi-Markov decision process (SMDP) problem. We use a real-time reinforcement learning (RL) [neuro-dynamic programming (NDP)] algorithm to construct a dynamic call admission control policy. We show that the policies obtained using our TQ-CAC and NQ-CAC algorithms, which are two different implementatio ...

10 Learning precise timing with lstm recurrent networks

Felix A. Gers, Nicol N. Schraudolph, Jürgen Schmidhuber

March 2003 **The Journal of Machine Learning Research**, Volume 3

Full text available:  [pdf\(378.27 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The temporal distance between events conveys information essential for numerous sequential tasks such as motor control and rhythm detection. While Hidden Markov Models tend to ignore this information, recurrent neural networks (RNNs) can in principle learn to make use of it. We focus on Long Short-Term Memory (LSTM) because it has been shown to outperform other RNNs on tasks involving long time lags. We find that LSTM augmented by "peephole connections" from its internal cells to its multiplicat ...

Keywords: long short-term memory, recurrent neural networks, timing

11 A conceptual framework for network and client adaptation

B. Badrinath, Armando Fox, Leonard Kleinrock, Gerald Popek, Peter Reiher, M. Satyanarayanan

December 2000 **Mobile Networks and Applications**, Volume 5 Issue 4

Full text available:  [pdf\(218.24 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Modern networks are extremely complex, varying both statically and dynamically. This complexity and dynamism are greatly increased when the network contains mobile elements. A number of researchers have proposed solutions to these problems based on dynamic adaptation to changing network conditions and application requirements. This paper summarizes the results of several such projects and extracts several important general lessons learned about adapting data flows over difficult network condi ...

12 "Ideal Parent" structure learning for continuous variable networks

Iftach Nachman, Gal Elidan, Nir Friedman

July 2004 **Proceedings of the 20th conference on Uncertainty in artificial intelligence**Full text available:  [pdf\(684.89 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)


In recent years, there is a growing interest in learning Bayesian networks with continuous variables. Learning the structure of such networks is a computationally expensive procedure, which limits most applications to parameter learning. This problem is even more acute when learning networks with hidden variables. We present a general method for significantly speeding the structure search algorithm for continuous variable networks with common parametric distributions. Importantly, our method ...

13 Adaptivity in agent-based routing for data networks

David H. Wolpert, Sergery Kirshner, Chris J. Merz, Kagan Tumer

June 2000 **Proceedings of the fourth international conference on Autonomous agents**Full text available:  [pdf\(841.21 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)**14 Course and exercise sequencing using metadata in adaptive hypermedia learning systems**

Stephan Fischer

March 2001 **Journal on Educational Resources in Computing (JERIC)**Full text available:  [pdf\(115.01 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

In the last few years the (semi-) automatic sequencing of course material has become an important research issue, particularly the standardization of metadata for educational resources. Sequencing can help to generate hypermedia documents which, at their best match the learner's needs. To perform (semi-) automatic course sequencing, a knowledge library as well as modular resources can be used. Both must be described by metadata. ...

Keywords: adaptive hypermedia systems, hypermedia learning, knowledge engineering, sequencing of course material

15 Learning subjective relevance to facilitate information access

James R. Chen, Nathalie Mathé

December 1995 **Proceedings of the fourth international conference on Information and knowledge management**Full text available:  [pdf\(943.28 KB\)](#) Additional Information: [full citation](#), [references](#), [index terms](#)**16 Learning behavior-selection by emotions and cognition in a multi-goal robot task**

Sandra Clara Gadanho

December 2003 **The Journal of Machine Learning Research**, Volume 4Full text available:  [pdf\(592.69 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The existence of emotion and cognition as two interacting systems, both with important roles in decision-making, has been recently advocated by neurophysiological research (LeDoux, 1998, Damasio, 1994). Following that idea, this paper presents the ALEC agent architecture which has both emotive and cognitive learning, as well as emotive and cognitive decision-making capabilities to adapt to real-world environments. These two learning mechanisms embody very different properties which can be related ...

17 Training hard to learn networks using advanced simulated annealing methods

Bruce E. Rosen, James M. Goodwin

April 1994 **Proceedings of the 1994 ACM symposium on Applied computing**

Full text available:  [pdf\(501.81 KB\)](#) Additional Information: [full citation](#), [references](#), [index terms](#)

Keywords: backpropagation, neural networks, optimization, simulated annealing

18 Technical poster session 2: multimedia networking and system support: Real-time content analysis and adaptive transmission of lecture videos for mobile applications

Tiecheng Liu, Chekuri Choudary

October 2004 **Proceedings of the 12th annual ACM international conference on Multimedia**

Full text available:  [pdf\(240.96 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)


With the popularity of e-learning systems, there is an increasing demand on effectively utilizing instructional videos to augment distance learning experiences. This paper addresses some special issues in processing and streaming lecture videos, and provides a new approach for real-time content analysis and adaptive transmission of these videos over wireless networks. A content-based analysis method and a buffer-based model are provided to detect content regions and to select content signific ...

Keywords: content analysis, e-learning, educational videos, video streaming, wireless communications

19 A learning technique for legal document analysis

Erich Schweighofer, Dieter Merkl

June 1999 **Proceedings of the seventh international conference on Artificial intelligence and law**

Full text available:  [pdf\(1.00 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

More and more law is available freely on the Internet. The growing complexity of legal rules and the necessary adaptation to user needs requires better instruments than manual browsing and searching interfaces of the past. Information reconnaissance of an unknown text corpus would provide a major help. Our research on neural networks concerns adaptive learning techniques for information reconnaissance in legal document archives. Self-organising maps offer besides successful classification a ...

20 Proteus*—adaptive polling system for proactive management of ATM networks using collaborative intelligent agents

Jidé Odubiyi, George Meekins, Song Huang, Tracy Yin

April 1999 **Proceedings of the third annual conference on Autonomous Agents**

Full text available:  [pdf\(264.46 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

Keywords: ATM networks, adaptive agents, collaborative agents, real-time performance, reinforcements learning

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